



Shell Oil Company

John D. Hofmeister
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March 19, 2007

The Honorable John Dingell
Chairman
Energy and Commerce Committee
United States House of Representatives
Washington, DC 20515

The Honorable Rick Boucher
Chairman
Subcommittee on Energy and Air Quality
United States House of Representatives
Washington, DC 20515

Dear Chairman Dingell and Chairman Boucher:

On behalf of Shell Oil Company and Royal Dutch Shell, I am enclosing responses to the questions posed in your letter of February 27, 2007.

We are pleased to be involved in this important public policy dialogue. As individual states move forward to enact state and regional greenhouse gas control regimes, it is ever more important that the U.S. Congress move to adopt a single, national program. Such a program will be far more efficient and effective than individual state actions. We are hopeful that reasonable, market-based solutions can be identified that will achieve meaningful reductions in global greenhouse gas emissions.

I look forward to working with you on this important matter. Please do not hesitate to call me or Sara Glenn of Shell's Washington office (202-466-1400).

Sincerely,

A handwritten signature in black ink, appearing to read "John D. Hofmeister".

Enclosure

cc: The Honorable Joe Barton
The Honorable Jeff Bingaman
The Honorable Pete Domenici



The Committee on Energy and Commerce
Questions Pertaining to Legislation on Climate Change

Q1: The Scope and Structure of Legislation

Addressing climate change requires an economy wide approach. Action is required in all sectors, including power generation, industry, transport and buildings. Changing consumer behaviour is also essential.

Why: The WBCSD publication *Pathways to 2050* shows that to move to a 550 ppm trajectory (as an example) would require a broad range of actions in every sector, with the short term targets (2025) indicating a need to start acting now on all fronts. An extract from this publication for the USA (and Canada) is attached. The full publication can be found at:

<http://www.wbcsd.org/web/publications/pathways.pdf>



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A central objective of climate change policy should be the efficient direction of capital within the market towards low and zero carbon emission investment.

Why: Addressing climate change is all about investment in new low/zero carbon infrastructure. Capital allocation within our economies needs to shift for this to happen. As industry is constantly building new energy infrastructure, the fastest way to achieve the necessary outcome is to directly channel that capital by offering an incentive (e.g. in the form of a price of carbon through a trading system). It is therefore crucial that a carbon trading system be designed in a way that does not take capital out of the industries to which it applies.

A carbon price alone may not provide a sufficiently strong incentive for innovation and additional fiscal and other incentives for research, development and demonstration may be required. Shell supports government incentives for private research, development, and demonstration of new technologies, such as grants, tax incentives and possibly prizes for successful breakthroughs. Primary government research can also play useful role.

Policy measures should be consistent across as broad a region as possible (between states and provinces, across free trade zones, leading to global consistency).

Why: It doesn't matter where CO₂ emissions are reduced, so the aim should always be to find the most cost effective reduction. Linking the various incentive systems and allowing the unrestricted flow of capital between them can achieve this. To do this the various systems must be constructed on a similar basis and use the same underlying "currency". Consistent policy across regions also minimises the possibility of market distortions, leading to competitiveness issues.

Policy should be built on a sound, established measurement and reporting basis.

Any plan should be built from a long-term (20+ years) environmental objective.

Why: A long-term objective and predictable regulatory framework creates certainty in the market that investments in CO₂ mitigation will have value over time. This then encourages investment. In a trading market the objective helps underpin the commodity in that it ensures demand well into the future.

A single instrument (e.g. economy wide trading system) is unlikely to deliver the necessary breadth of change that needs to start now. Rather it may result in pockets of change. Therefore, a number of approaches will be required – but not many.



Why: Not all sectors of the economy appear to respond in the same way to the same carbon price. At \$50 per tonne of CO₂ significant action will result in the industry and power generation sectors (even including sequestration), but such a price may not be sufficient to deliver a consumer response in the mobility sector. This may need to be in the order of \$200+ per tonne of CO₂ based on past consumer behaviour. As action needs to start in both sectors now, this implies that different policy instruments may be required. Policies should not mandate use or sale of specific technologies or fuels. Policies should be based on carbon emissions and should not discriminate against particular fuels or feeds.

1. A “cap-and-trade” system is well suited to power generation and industry. Key system deliverables include transparency, high liquidity, trade depth, a forward curve and low transaction costs. The structure is discussed in Q2.
2. Rapid deployment of renewables can be promoted by a simple, high profile and credible national target for renewables share of generation and integration with other climate change policy measures. However, a renewables mandate is in principle equivalent to an input subsidy and an emissions tax. Over time, such mandates should be phased out as a credible and effective market price for carbon becomes established and as new technologies mature.
3. Whilst Shell has no business position in nuclear power, we nevertheless recognise the importance of this zero emission generation technology. It is time for governments to put the nuclear discussion back on the table with a view to resolving key issues (e.g. waste).
4. The transport sector is best handled separately and will require specific approaches:
 - Vehicle efficiency standards.
 - Broadening the choice of fuels
 1. Diesel and synthetic diesels
 2. Encouraging 2nd+ generation bio-fuels
 3. Advanced fuels (e.g. hydrogen).
 - A change in consumer behaviour.

Shell does not support the use of “cap-and-trade” in this sector whereby the allowances are held by the fuel supplier (“upstream” approach). The upstream approach shifts the point of regulation away from the point at which projects are initiated. Shell would have only limited ability to manage emissions. Price becomes the mechanism for regulation. This is a less efficient approach.

5. The commercial and domestic sectors require a series of robust standards for new buildings, appliances etc. Incentives should be used to encourage retrofit. Shell does not support the use of an upstream approach for managing direct fuel use in these sectors.



Q2: Cap-and-Trade Systems

a. Covered Sectors.

The emissions from large point sources (e.g. a refinery, coal fired power station) represent up to 50% of the economy wide emissions and are best managed through "cap and trade" style emissions trading. This has been implemented in the EU and Shell has broadly supported the approach there.

The aim of an ETS should be to provide an incentive for greater efficiency and to direct capital towards more CO₂ efficient projects, via a market price for CO₂ emissions.

b. Details in statute or another entity.

The complete operation of the trading system should be described in the statute. Not doing so results in local interpretation of the rules, leading to harmonization issues and therefore competitiveness concerns. Examples of poor harmonization, which have been experienced in the EU where much of the operation of the ETS sits with member states, include identical facilities included in some areas but not others, different approaches to new entrants and widely varying allocation for similar facilities.

c. Point of regulation (upstream / downstream).

The point of regulation (allocation) is set by the "make or buy" principle. This means that the holder of allowances should be both the emitter and (even more importantly) the party that can initiate the projects that create the reductions. Being both the allowance holder (emitter) and the project developer means that the emissions market can be used to help finance the project by selling the future reduction in the forward market and bringing capital back. Alternatively, if no reduction opportunities present themselves, the allowance holder can purchase allowances for compliance and thus channel capital into the market for others to use for their projects. This is called "make (reductions) or buy (allowances)". "Make or buy" is fundamental to the operation of an emissions trading system.

An upstream approach separates many of the reduction opportunities from the point of regulation, giving the allowance holder few options to manage emissions. Price, rather than projects, becomes the principal mechanism by which emissions are "managed" from the upstream perspective.

d. Allocation of allowances.

Allowances should be granted free (grandfathering) at the start of an emissions trading system and this should be based on historical emissions from a fixed year or average over a number of years. A later approach is to base allocation on a performance benchmark (e.g. tonnes CO₂ / tonne of production capacity).

The allocation process must account for the entry of new facilities, significant expansions to existing facilities, or facility modifications required by regulation.

While Shell does not favour auctioning particularly in an initial phase of a system, governments may eventually use this approach because of the ease with which allowances can be allocated and to capture some of the value of the allowances. However, the system should not withdraw capital from the industries and firms covered by the scheme. Implementation of a profit-neutral system would require detailed information on an industry's market structure and demand conditions, which could potentially be developed during an initial phase of the system when allowances are distributed for free. It should be recognised moreover that there is not a one-size-fits-all approach to achieving a profit neutral scheme and that conditions to achieve profit neutrality may well differ across industries and firms. Auctioning raises a number of specific and significant concerns, namely:



- ✓ Payment for allowances withdraws capital from the covered sector to the extent that this cost cannot be recovered from higher product prices. The impact of a system on profits depends on an industry's market structure and demand conditions and consequently the arrangements to guarantee profit neutrality are likely to differ across industries.
- ✓ Some methods of achieving profit neutrality are likely to be more efficient than others. For example, a system of mixed grandfathering and auctioning would be more efficient than a system that recycles auction proceeds funds through corporate profit tax credits.
- ✓ The conduct of multiple auctions in the course of a continuous and free market has the potential to lead to price spikes and collapses.
- ✓ The administration of auctions is a serious undertaking because participation must be open to the public but must also involve financial checks so that auction participants can guarantee to be able to pay for the allowances they bid for.

Should auctioning be used, two key design criteria must be incorporated:

- ✓ The system is designed with the aim of profit neutrality at the industry and firm levels. Environmental objectives are not advanced by arbitrarily destroying shareholder value in existing firms; indeed this can act as a deterrent to necessary investment. The incentive for abatements comes from the carbon price signal.
- ✓ There must be safeguards to ensure that this objective is delivered in practice and not just in principle.

e. The cap

"Cap and trade" requires the application of a fixed cap across the covered sector for each compliance period, with the number of allowances in circulation equating to the cap and less than a "business as usual" expectation. This then creates the necessary scarcity for trade to develop. The extent of scarcity should be set with a view to the efficiency gains and low carbon investments that are technological feasible within the compliance period. Once allocated the number of allowances in circulation should not be changed.

f. Timing of the cap

The ETS should be based on a long-term (15-20 years) environmental objective, with clear compliance periods. Investment in energy infrastructure is a long-term undertaking. Whilst the market does not need the exact reduction target for every year far out into the future, it does need sufficient information on which to assess long-term supply-demand forecasts and therefore make some assessment of long-term carbon prices. This will help create incentives for investment, but it must be recognised that considerable uncertainty will likely surround expectations of future carbon prices, including credibility of announced government environmental objectives.

A compliance period could be up to 5 years in length. Allowance allocation for a given compliance period should be known 3-5 years before the start of the period.

g. Greenhouse gases covered

The principal regulated gas is CO₂. Shell would support a wider emissions trading market that included other GHGs but there are three caveats to this

- ✓ Incorporating these would result in a significant measurement and reporting challenge, mainly because non-CO₂ GHG emissions are largely calculated using factors and are not measured directly. As far as we are aware there is no universally accepted set of factors that are used to calculate non-CO₂ GHG emissions and therefore there is likely to be a significant variation between companies / industries /



countries. If it was desired to expand the scheme to non-CO2 greenhouse gases work would first be needed to develop a standard set of factors that could be applied so that a level baseline could be set.

- ✓ If additional gases are to be included then this would need to be supported by a clear simple, protocol for measuring and verifying non-CO2 GHG emissions, discussed with the relevant sectors to make sure that it is workable and pragmatic.
- ✓ A “de minimis” rule (xx t emissions/a) should be established in order to avoid an inefficient system that would require an immense effort in respect of administration and monitoring/reporting/verification.

h. Credit for early action

In practice this cannot be easily implemented. This should not be the primary focus of attention as the trading system is put into practice. If, as discussed in (d) above, a performance benchmark is utilised for allocation, some credit for early action will be delivered.

i. Safety valve

The system should be treated as other commodity markets would. Whilst an emissions market can only be created by regulation and the creation of a scarcity, such regulation should avoid trying to modify the trading behaviour of the market. Regulation should not be used to manage price (e.g. through caps or floors) or limit the trading of any of the instruments created for the market (e.g. flow to/from linked schemes). Doing so may lead to market distortions (e.g. price spikes), which in turn may lead to the call for additional regulation (e.g. price caps).

j. Offsets

It must have access to project offset mechanisms (e.g. CDM, JI) and should not limit their use. Linkage to other systems is essential. In the US context it would be better to recognise the existing international project mechanism (CDM) rather than developing a parallel system. The effort involved in establishing a good mechanism should not be underestimated. CDM works today as a result of such effort.

k. Auction or safety valve revenue

See Question 2(d).

l. Encouraging technology development

It must recognise key abatement / reduction technologies from the outset and must be ready to embrace technologies as they mature (e.g. Carbon Capture and Storage - CCS). CCS is one of the few technologies that is entirely climate change driven. Whilst other zero carbon power generation alternatives exist, e.g. wind, they are also driven by factors such as energy costs, security of supply concerns and local air quality standards. This is not the case for CCS. Without carbon emission targets, the technology would not be developed or deployed. The development and deployment of CCS will not happen without policy intervention as described below:

- ✓ Ensure that suitable financial encouragement is given to a number of large-scale pilot projects in several parts of the USA.
- ✓ Introduce additional tools to better manage the long-term carbon market risk associated with CCS.
- ✓ Include carbon storage in all emissions trading schemes and coordinate the development of standard rules and measurement protocols.



- ✓ Include carbon storage in the project-based mechanisms of the UNFCCC, utilising standard rules and measurement protocols.
- ✓ Address the issue of long-term liability for stored carbon dioxide.

m. Design features to encourage developing countries

See Q4 – Integrating with the International Framework.

In addition, developing country participation will be best encouraged by developing an open system with the flexibility to link to other national systems and project mechanisms and to not limit the overall use of these for local compliance.

Q3: Existing Voluntary and Mandatory Systems

Existing approaches largely focus on measurement and reporting and this is an important prerequisite to implementing a workable emissions trading system. Therefore, they have added value.

Other voluntary approaches have been useful in raising corporate awareness, building capacity to handle future mandatory approaches and enabling an informed discussion to take place on future legislation.

Voluntary approaches, by their nature, will not lead to the scale of change required to address the issue of climate change.

Q4: Integrating with and International Framework

Shell has been working with the World Business Council for Sustainable Development to develop ideas and concepts for the needed post-2012 international framework. A thought piece, attached, was developed as a business contribution to the UNFCCC dialogue on long-term cooperative action and was presented at the recent UNFCCC COP in Nairobi.



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Q5: Actions by Shell

Shell has a voluntary greenhouse gas target, adopted in 2002 (and following on from an earlier target for the period 1990-2002), to reduce direct emissions by 5% relative to a 1990 baseline, for all facilities globally under our operational control. Key elements in the delivery of this target include;

- A commitment to end continuous venting of associated gas at our oil production sites. This commitment was delivered on in 2003.
- A commitment to end continuous flaring of associated gas at our oil production sites. We expect to complete this programme in 2009.
- An improvement in the energy efficiency of our operations.

The tracking of various Group targets on flaring, emissions and energy efficiency is reported annually in the Shell Sustainability Report (http://www.shell.com/static/envandsoc-en/downloads/about_this_site/shell_sustainability_report_2005.pdf for the 2005 Report)

Shell Canada Limited voluntarily set two targets for their GHG emissions. For their base business, Oil Products and Exploration & Production, their target is to be six per cent below their 1990 emissions level by 2008. For their Oil Sands base business, their target is to cut emissions by 50 per cent below those estimated at project start-up by 2010.



Various Shell companies in the EU have been subject to the mandatory EU Emissions Trading System. Nearly 30 Shell operated facilities are covered by the scheme. Shell Trading conducts all of the Shell trade in EU allowances. In 2003 Shell Trading was the first company to execute an EU allowance trade and more recently they were the first company to trade a 2008-2012 period allowance.

The EU-ETS is structurally sound, with a framework that broadly matches the ideal arrangement for a cap-and-trade system.

Shell Trading gained early experience in CO₂ emissions trading when Shell participated in the UK Emissions Trading System and the Danish Emissions Trading System.

Shell is now a member of the California Climate Action Registry.

Shell is now preparing the groundwork for longer-term, larger scale emissions management. We have established a business team focused on CO₂ management. That team is leading the Shell involvement in technologies such as carbon capture and sequestration.